A central and key element of any land conservation plan are the policies, strategies, priorities and recommendations for how to best go about protecting and conserving the most important lands and water resources within the study area. Protecting the 37,401 acres of core conservation focus areas and the 66,295 acres of both core and supporting drainage focus areas identified by this plan may seem to be a daunting task for any conservation agency, organization or community. However, all of these focus areas suggest a network of lands that, if protected, would retain a core of significant natural resources – consisting of largely unfragmented and undeveloped land and water resources – that are critical in supporting natural habitat, biodiversity and healthy ecosystems within the watershed. While this network of conservation focus areas are not uniform across the watershed in their location, functions and values, the focus areas have been delineated through a consensus-driven GIS-based co-occurrence modeling process which identifies natural lands and waters that are both highly valued and uniquely important.

In general, the results of this plan are consistent with many previously identified high value conservation areas such as in the 2005 Conservation Plan for the Piscataquog Watershed prepared by and for the Piscataquog Land Conservancy (formerly the Piscataquog Watershed Association) including many other studies conducted by the watershed’s municipal conservation commissions, land trusts and other conservation organizations. If all the conservation partners and conservation commissions throughout the watershed work together to protect these identified focus areas through the implementation of similar policies, strategies, priorities and actions, the task of protecting these areas will be more effectively accomplished.

The purpose of this section of the plan is to set forth a watershed-wide action plan that can serve as a guide for all the communities and conservation organizations working to protect lands within the watershed. This action plan is built upon many of the same goals, principles, priorities and resource targets outlined in the 2005 conservation plan including many of the conservation strategies – both voluntary and regulatory – as set forth and recommended by the Land Conservation Plan for New Hampshire’s Coastal Watersheds. This coastal plan also includes many non-tidal communities (such as Candia, Chester, Deerfield and Raymond located within the SNHPC region), and as one of the first watershed-wide land conservation plans in the state; it includes a good source of effective strategies and model ordinances.

**Conservation and Land Protection Goals, Principles and Priorities for the Watershed**

All of the conservation and land protection goals, principles and priorities as outlined in the 2005 conservation plan prepared by the Piscataquog Watershed Association (now referred to as the
Piscataquog Land Conservancy) remain the same in this plan. These goals, principles and priorities are identified below.

A. Goals

All the conservation partners and communities within the watershed should continue to work together in common purposes to achieve the following four major goals:

- To maintain the integrity of aquatic systems within the watershed;
- To maintain the integrity of forest matrix within the watershed;
- To maintain the native biodiversity within the watershed; and
- To restore degraded systems.

B. Principles

All land protection and conservation efforts in the watershed should continue to reflect the following principles of landscape ecology:

- Maintain large, unfragmented blocks that contain a mosaic of vegetation types and aquatic resources;
- Maintain large, compact unfragmented areas;
- Maintain important wildlife movement corridors (e.g. ridge, riparian areas);
- Maintain opportunities for wildlife movement between large unfragmented areas; and
- Maintain landscapes with sufficient proportions of undeveloped land to sustain ecological processes and native biodiversity.

Also important are the following additional principles of watershed ecology which stress the need to:

- Maintain storage capacity of wetland systems;
- Protect water quality and capacity of stratified drift aquifers;
- Provide for natural erosion and deposition by flowing waters;
- Protect aquatic systems from anthropogenic inputs of nutrients, sediment, and pollutants;
- Avoid activities that result in the transfer of water from its smallest aquatic system;
- Maintain habitat connectivity for aquatic organisms;
- Maintain natural hydrology and temperature regimes of aquatic systems; and
- Maintain integrity of riparian systems.

C. Priorities

The primary priorities for conservation within the watershed as outlined in the 2005 conservation plan should continue to be directed towards the following aquatic and terrestrial focus areas:

---

26 Adapted from Gutzwiller, K.J. 2002.
1) Aquatic Focus Areas

The Watershed’s aquatic system includes lakes and ponds, rivers and systems, and wetlands of numerous types.

a. **System-wide Criteria** throughout this system, high conservation priority will be given to aquatic resources that:
   - Are identified as aquatic reference areas (a reference area is a relatively pristine aquatic feature against which changes to other similar features in the watershed are measured); OR
   - Support focal wildlife species (include vertebrates that are rare or endangered in New Hampshire, are uncommon in areas of the state outside of the Piscataquog Watershed, or particularly dependent on aquatic systems during some or all of their life cycle); OR
   - Provide habitat for rare aquatic plants or invertebrates; OR
   - Harbor exemplary natural communities as identified by the NH Heritage Bureau; AND
   - Are free of invasive species.

b. **Lakes and Ponds** within each subwatershed will be targeted for protection based on system-wide criteria and/or some combination of the following:
   - Essentially undeveloped shoreline (which provide for important travel corridors for many wildlife species);
   - High water quality (dependent on variety of characteristics such as pH, salinity, temperature, sediment concentration, odor, color, light penetration, nitrogen, phosphorous levels and other pollutants);
   - High biological integrity, as indicative by the presence of indicator fish; macro invertebrates, or other species, using one or more existing evaluative systems; and
   - Absence of water control structure(s) which can alter movement of sediment, resulting in upstream deposition and downstream scouring.

c. **Rivers and streams** within each subwatershed will be targeted for protection based on system-wide criteria and/or some combination of the following:
   - High water quality;
   - Naturalness (based on the criteria outlined in the 2005 plan);
   - High biological integrity, as indicated by presence of indicator fish; macro invertebrates, or other species, using one or more existing evaluative systems;
   - Absence of water control structure(s); and
   - Undeveloped shoreline:
     - First and second order (headwater) streams in large unfragmented blocks, especially where their entire watershed is included.
     - Third order streams which no development within a minimum of 300 m from shore on either side, especially where wide vegetative buffers exist.
     - Undeveloped shoreline on either side of fourth and fifth order streams.
d. **Wetlands** within each subwatershed will be targeted for protection based on system-wide criteria and/or some combination of the following:

- Representation of all watershed types (e.g. vernal pool, bog, emergent marsh, scrub-shrub swamp) which play different roles in the watershed’s hydrology and support different communities of plants and animals,
- Special, high-value wetlands:
  - Clusters of isolated wetlands in large, unfragmented forest blocks (e.g. these wetlands are part of the headwaters of the river and provide important habitat for semi-aquatic wildlife species and foraging habitat for species that prey on aquatic organisms);
  - Large, diverse wetland complexes (e.g. include a number of different wetland types – emergent marsh/forested wetland – which support more plant and animal species than similar-sized wetlands of a single type and play an important role in hydrology of the watershed and provide extensive riparian habitat);
  - Stream-associated wetlands (i.e. wetlands associated with streams help to regulate down-stream flow during extreme conditions of flood and drought);
  - Saddle wetlands (i.e. wetlands at a watershed divide that drain in two directions); and
  - Undeveloped shoreline.

2) **Terrestrial Focus Areas**

The Watershed’s terrestrial system includes all the upland area with its various land uses, including managed and unmanaged forests, agricultural lands, and developed areas. Because forests constitute New Hampshire’s natural upland vegetation in the absence of human influence, terrestrial conservation efforts will continue to focus on forested lands.27

a. **System-wide criteria**

High conservation priority should be given to:

- Large blocks of unfragmented land (greater than 500 acres) that provide core wildlife habitat;
- Late successional forests characterized by: shade-tolerant tree species, complex vertical structure with many layers of foliage and relatively abundant woody debris and standing dead trees;
- Connections between protected areas (existing and future) to promote wildlife movement;
- Significant plant and wildlife habitat identified by NH Natural Heritage Bureau and NH F&G Wildlife Action Plan; and

27 While grassland habitats are significant, and educational efforts are needed with respect to information on mowing regimes and other management practices that help protect fields for grassland-development species (e.g. meadowlarks, bobolinks), because the Piscataquog watershed is not among the most productive in the state for grassland species and given increasing development, the plan’s terrestrial focus should be on protecting large, unfragmented blocks of upland.
• Special surficial topographic features (e.g. eskers, drumlins, ravines, kettle holes, gorges, ledge outcrops, and other unusual landscape features).

**Conservation Targets for the Watershed**

As outlined in the 2005 conservation plan, the following conservation targets for the watershed remain unchanged:

**A. Watershed-wide Targets**
- Protect one reference area for each aquatic component, except streams. For 1st and 2nd order streams, protect key headwater stream watersheds.
- Protect at least five unfragmented blocks, each of which exceed 1,000 acres.

**B. Subwatershed Level Targets**
- Protect 30 percent of each subwatershed within unfragmented blocks of >500 acres;
- Maintain as undeveloped land at least 25 percent of each subwatershed at least 820 feet (250 m) from the nearest road;\(^{28}\)
- Protect at least one good (representative) example of each of the following pond and wetland types: forested wetland, scrub-shrub, emergent marsh, and unconsolidated bottom, with associated uplands;
- Protect at least one entire headwater watershed, ideally, one with high native species diversity (fish or other taxa); and
- Protect at least two good (representative) examples of special, high-value wetlands.

The target goals and minimum focus area sizes indicated in the 2005 conservation plan for each of the HUC 12 subwatersheds are identified as follows:

<table>
<thead>
<tr>
<th>Subwatershed</th>
<th>Unfragmented Blocks &gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weare Reservoir Subwatershed</td>
<td>500 acres</td>
</tr>
<tr>
<td>Rand Brook-South Branch</td>
<td>1,000 acres</td>
</tr>
<tr>
<td>South Branch</td>
<td>1,000 acres</td>
</tr>
<tr>
<td>Everett Lake</td>
<td>1,000 acres</td>
</tr>
<tr>
<td>Upper Piscataquog River</td>
<td>900 acres</td>
</tr>
<tr>
<td>Middle Branch</td>
<td>500 acres</td>
</tr>
<tr>
<td>Lower Piscataquog River</td>
<td>600 acres</td>
</tr>
</tbody>
</table>

Land parcels that include the entire watershed of one or more low order streams should continue to have a high priority for protection. As indicated in the 2005 conservation plan, the timing of specific focus area action will depend on landowner interest, goals and timetables of conservation partners, and availability of funding for geographic-specific areas.

These targets and specific focus area action should be reflected within the specific municipal-based conservation action plans to be developed in coordination with each of the eleven municipal conservation commissions within the watershed. The specific focus areas identified in

---

\(^{28}\) This target reflects a conservative approach to habitat block size. It also goes further in protecting rural character, an attribute most watershed towns seek to maintain.
2005 conservation plan can provide a solid baseline for the preparation of these plans. The Core Focus and Supporting Drainage Areas identified in this plan should also be coordinated and utilized within the individual municipal-based conservation action plans.

**Implementation Strategies for the Watershed**

The overall implementation strategies outlined in the 2005 conservation plan include: (1) land protection; (2) inventory, monitoring, and research; (3) land use planning; (4) education and outreach, (5) restoration; and (6) funding. Each one of these strategies is important and have been incorporated into this plan. However, the purpose of this conservation plan is to set forth an implementation strategy designed principally to protect and minimize development impacts within the Core Focus Areas and Supporting Drainage Areas identified in this plan. To accomplish this goal, the following three-step strategy is recommended.

**Step One: Adopt the Piscataquog Watershed Land Conservation Plan** at all levels of government (state, regional, local) and use the plan as an overall and consistent framework for land conservation within the watershed.

**Step Two: Continue to study, inventory and monitor the watershed's natural systems and pursue land protection, restoration and public education and outreach** among all levels of government (state, regional, local) and among all conservation organizations and land trusts actively working to protect conservation areas within the watershed -- giving special attention to both the focus areas identified in the 2005 plan and the Core Focus and Supporting Drainage Areas identified in this plan.

**Step Three: Establish Effective Zoning Ordinances to Protect the Focus Areas Identified in this Plan** among all eleven watershed communities to minimize harmful impacts to the environment while allowing for a reasonable level of development.

**Implementation Strategy One: Adopt and Use the Plan and its Policies**

A major purpose of this plan is to serve as a framework for land conservation within the watershed. This framework applies to both the physical landscape and the water resources to be conserved -- the identified targets and focus areas -- as well as the goals, principles and priorities that are a part of the plan. State and local governments should consider conservation strategies that protect both the highest valued and most important natural features and water resources within the watershed.

Upon completion of this plan (both Phase One and Phase two), Joint Planning Board and Conservation Commission public hearings will be organized within each municipality to seek adoption of both the Piscataquog Watershed Land Conservation Plan as well as the recently updated 2010 Piscataquog River Management Plan. Both plans are designed to be adopted by reference as part of each community’s master plan and natural hazard mitigation plan. A Signature Page upon Plan Adoption will be included as part of Volume II of the final plan.
Implementing this plan will require action by all levels of government, as well as the private sector. To ensure that this plan is implemented, additional signature pages should be obtained from the following agencies and organizations that have important roles and responsibilities natural resources protection and management.

State agencies and related entities: New Hampshire’s Department of Environmental Service, Office of Energy and Planning, Fish & Game Department and Department of Resources and Economic Development should use this plan to guide and prioritize grant funding, including the Aquatic Arm Fund prioritization, for land and aquatic conservation and restoration and to help formulate policy with respect to future development that could impact the integrity of the Conservation Focus Areas. In addition, the NH Department of Transportation should use this plan to identify potential environmental mitigation sites associated with major transportation projects planned within the watershed.

Regional agencies: The Southern New Hampshire, Central, Nashua and Southwest Region Planning Commissions should adopt and use the plan as a part of their respective regional comprehensive plans, and as a source of policy guidance on the inclusion of the Conservation Focus Areas in the future land use elements of those plans.

County Conservation Districts: The Hillsborough and Merrimack County Conservation Districts should use the plan and the identified Conservation Focus Areas as input to their conservation priorities with respect to land protection and working with landowners on land management plans.

Municipalities: Planning Boards should consider adopting the plan as an element of their local master plans and hazard mitigation plans to establish the basis for any zoning or regulatory standards they may propose or enact that apply specifically to development within the Conservation Focus Areas. Conservation Commissions and Open Space/Land Conservation Committees should utilize the plan as a guide in developing local conservation priorities and to develop municipal-based conservation action plans.

Private and Non-Profit Conservation Organizations: Land trusts and other similar conservation groups and organizations can use the plan as a guide in prioritizing their programs and to protect and manage land for conservation. See Appendix I for a listing of the land trusts and related organizations that operate within the watershed.

Implementation Strategy Two: Continue to Study, Inventory and Monitor the watershed’s natural systems and Pursue Land Protection, Restoration and Public Education and Outreach.

Communities and landowners in the Piscataquog Watershed have many options and resources available to them when planning for land protection and conservation. A variety of techniques and approaches can be tailored to fit a wide range of conditions. Selecting one or several of these options depends on the natural characteristics of the land, landowner objectives, availability of funding, and community goals and priorities. The booklet *Conserving Your*
Land: Options for New Hampshire Landowners provides a helpful overview of land protection tools, illustrative case studies, and related information.\(^{29}\)

The co-occurrence maps and recommendations of this plan provide communities and landowners with important information about the type and location of highly significant natural resources within the watershed. This information should be considered when updating local open space and conservation plans, selecting the best land protection option, and identifying potential sources of funding for a project.

Some of the specific land protection and conservation strategies recommended by the 2005 conservation plan and this plan include:

- Select one or more project focus areas from the 2005 plan and this plan for 3 to 5-year land conservation efforts;
- Work with key landowners to secure conservation easements and fee interests on high priority lands within focus areas;
- Work with landowners throughout the watershed towns to protect strategically important parcels; and
- Seek collaboration between municipalities and conservation partners to achieve the goals of this plan.

The restoration strategies recommended by the 2005 conservation plan and this plan include:

- Undertake restoration projects, as feasible, considering natural resource value of the project, its capacity to serve as a model or otherwise promote restoration work in the watershed and availability of funding. In general, restoration projects might include such activities as modification or elimination of hydropower releases to create more natural conditions; reduction, control, or elimination of invasive species at sites; removal of inactive dams to restore free flowing waters; modifications of culverts to better allow for passage of fish and other aquatic fish as well as flood waters; and elimination of undesirable road and stream crossings.
- Stream bank restoration and stabilization; erosion control and stormwater management.

The education and outreach strategies recommended by the 2005 plan and this plan include:

- Meet with potential partners to share land conservation visions and goals and discuss opportunities for collaboration, including:
  - Planning boards and conservation commissions in the watershed’s municipalities;
  - Pertinent regional planning commissions;
  - The Piscataquog River Local Advisory Committee established under RSA 483, the State Rivers Management and Protection Act;

Local, regional and statewide land trusts (Francelstown Land Trust, Monadnock Conservancy, Piscataquog Land Conservancy, NH Audubon, Society for Protection of NH Forests, The Nature Conservancy);

State natural resource agencies (NH DES, NH Fish & Game, NH Division of Forests and Lands, NH Heritage Bureau, UNH Cooperative Extension); and

Local schools and colleges, and other non-profit conservation groups, such as Trout Unlimited.

- Offer workshops on conservation easements, tax implications, and related issues to interested landowners;
- Pursue opportunities to develop tools like the video produced in connection with the Headwaters Project I for use at workshops, and in other contexts, such as with landowners and local boards and commissions;
- Work with UNH Cooperative Extension to provide information to landowners regarding wetlands and riparian buffers, sustainable forest management and invasive species;
- Provide information to the public about watershed threats and values and conservation opportunities through written, electronic and broadcast media;
- Provide or otherwise support, as through publicity, workshops for landowners of large tracts or special resources regarding land management issues and conservation opportunities;
- Collaborative with Cooperative Extension Coverts Program volunteers and Manchester Tree Stewards to develop and disseminate landowner information.

Strategies for studying, inventorying and monitoring the watershed recommended by the 2005 plan are provided below:

- Recruit and train volunteers to assist with inventory, monitoring and research projects. Collaborate with institutions of higher educations, natural resource agencies, and the Russell Piscataquog River Watershed Foundation to accomplish inventory, monitoring and research projects.
- Locate potential connections between protected areas.
- Complete detailed map-based analysis of priority wetlands, i.e. saddle wetlands, clusters of isolated wetlands in terrestrial blocks, large, diverse wetland complexes, and stream-associated wetlands; field check.
- Develop and maintain spatially explicit database of biodiversity and natural resources in the watershed to document features of important areas for protection and to aid in priority setting.
- Identify, inventory, and map specific threats to biodiversity and natural resources in the watershed;
- Inventory and map occupied habitat of selected focal species.
- Continue to participate in NH DES Volunteer Rivers Association Program or the UNH Cooperative Extension Lay Lakes Monitoring Program where no lay monitoring programs exits and incorporate data from ongoing lake monitoring programs.
- Identify and document attributes of important and sensitive reaches for streams and other aquatic components of the watershed.
- Document and map locations of invasive plants.
• Inventory and map undeveloped shorelines of wetlands and waterbodies.
• Evaluate biological integrity of lakes and streams.

The following sections are taken from the *The Land Conservation Plan for New Hampshire’s Coastal Watersheds* and are included in this plan to provide communities and other conservation groups within the watershed important information about the various tools, techniques and approaches available for land protection.

**Conservation Easements**

A conservation easement is a voluntary, legal agreement between a landowner and a qualified conservation organization or government agency that permanently limits a property’s uses in order to protect its natural resource values. The easement becomes a permanent part of the title, and is recorded with the register of deeds. Land under easement may be public or privately owned.

Future landowners must comply with the terms of the easement. Land purchased by conservation easement is typically inspected annually by the easement holder to ensure compliance with the terms of the easement. An easement restricts development and other land uses to the extent necessary to protect the significant conservation values of the property. Some easements completely prohibit all residential and commercial development and construction, while other easements may allow limited development. Landowners can work with communities, land conservation organizations, and public agencies to write the conservation easements that reflect both the landowner’s desires and the need to protect important conservation values. Easements typically permit landowners to continue traditional and sustainable uses of the land such as farming and forest management, though in some cases easements may further restrict extractive activities.

**Fee Simple Acquisition**

A community, land trust, or public agency may choose to purchase land outright for conservation purposed. Fee simple acquisition means the conservation buyer has absolute ownership of the property, including the full suite of responsibilities that ownership entails.

If a community is considering acquisition of fee ownership in a parcel of land, the municipality should at the outset of the project:

• Determine the permitted and prohibited uses on the property;
• Determine the appropriate management authority (e.g., conservation commission, parks and recreation, Department of Public Works, etc.);
• Establish a formal means to ensure that property has permanent legal conservation restrictions (e.g., an easement to a third party); and
• Develop recommendations as to management needs or desires (e.g., the installation of access gates or the desire to manage the property as a town forest).
When a municipality acquires a fee simple ownership of a parcel for conservation purposes, land conservation experts strongly recommend there be a second layer of protection to ensure that the conservation purposes for which the land was acquired are protected in perpetuity. This second layer of protection could be a conservation easement to a third party (such as a qualified conservation organization or the county or state), or possibly a deed restriction.

Gift or Donation

A landowner may choose to donate land or a conservation easement. An outright donation of land has many benefits. For the landowner, the donation may reduce estate, income, and property taxes. For the receiving community, land trust, or public agency, the donation advances conservation goals while conserving limited financial resources. Additionally, it may be possible for the landowner’s donation to be credited as match for other conservation projects and funding, thus increasing the magnitude of the donation.

An outright donation is not the only way for a landowner to establish conservation land. In some cases, landowners can continue to live on the land by donating a remainder interest and retaining a reserved life estate. In this arrangement, the owner donates the property during his or her lifetime, but continues to live on and use the property. When the owner dies (or at any time during the owner’s life, if they so choose), the receiving entity (or donee) gains full title and control over the property.

By donating a remainder interest, a landowner can continue to enjoy their land and may be eligible for a tax deduction at the time the gift is made. The dedication is determined through actuarial tables, and is based on the fair market value of the donated property less the estimated value of the reserved life estate.

If a landowner would prefer to own and control their land during his or her lifetime, but assume its protection after their death, they can donate through their will. The receiving entity must be aware of and willing to accept this donation, and all the necessary legal arrangements, including the protection and use of the property, should be agreed upon ahead of time.

Bargain Sale

A bargain sale occurs when land or a conservation easement is sold for less than its fair market value. A bargain sale may provide the landowner with tax advantages because the difference between the land’s appraised fair market value and its sale price is considered a charitable donation and may be claimed as an income tax deduction. The value of this deduction must be determined by a qualified real estate appraiser and is subject to IRS review.

Fair Market Value Purchase

When the landowner is unable or unwilling to donate or sell at a bargain price, communities, land trusts and public agencies may choose to pay full price, known as the fair market value, for a parcel of land or a conservation easement. The fair market value of the property is determined by a qualified real estate appraiser.
Options to Purchase and Rights of First Refusal

If a community, land trust or agency has identified a parcel of land for protection, but does not have all the necessary funds in place to purchase the land or the easement, the landowner may be willing to give or sell the community an option to buy the property or easement. Under an option, the landowner and conservation buyer contractually agree on a sale price, and the buyer is given a specified amount of time to exercise the option. The buyer is not obligated to purchase the land or easement. During the option period, the land cannot be sold to any other buyer, giving the conservation buyer time to raise the necessary funds.

If the landowner is not ready to commit to selling the land or conservation easement, he or she may be willing to grant a first right of refusal. This right does not obligate the holder to purchase the land or easement, but does give the holder the opportunity to match any bona fide offer the landowner may receive.

Stewardship and Monitoring of Lands Subject to Conservation Easement

Restrictions on the type of land use activities must be enforced in perpetuity on conservation easement lands. To fulfill this responsibility, the easement holder annually inspects the property to ensure no violations of the conservation easement have occurred. If a violation is found, the easement holder must work to bring the easement back into compliance through a process outlined in the conservation easement.

Easements require a substantial, on-going commitment of knowledgeable and consistent staff or volunteers. An easement baseline report must be prepared (preferably before the easement is acquired). The baseline report documents the condition of the property and improvements thereon, at the time the easement was granted. Then the easement must be regularly monitored with reports prepared that document observations made during the monitoring process. All of these reports must be stored in an organized and safe filing system. In addition, it is recommended that easement holders establish and maintain a good working relationship with the landowner.

It takes time and skill to monitor the property to make sure the provisions of the easement are being honored by the landowner. If there are easement violations, the easement holder will likely need to invest significant time in working with the landowner to correct the violations. If a violation cannot be resolved by the easement holder and the landowner, court action is the last alternative for the easement holder.

Effective conservation easement stewardship requires time and consistent policies and procedures, which may be difficult for some communities due to the regular turnover of volunteers and committee/commission members. Communities may want to consider contracting with a land trust or similar organization to provide stewardship services, including conducting a baseline report and annual monitoring. These services are typically done for a fee, so towns should consider this cost when developing the budget for a land conservation project.
Stewardship of Fee-Owned Conservation Land

Public agencies, municipalities, and conservation organizations own hundreds of thousands of acres of conservation land across New Hampshire and within the Piscataquog Watershed. Responsible management of fee-owned conservation land is essential to maintain over time the natural resource values for which the land was protected, and to ensure continued public support for land conservation.

To effectively manage conservation lands, owners should undertake the following activities:

- Document and map the property’s natural resources values and features. Many conservation owners conduct ecological inventories to determine the presence, location, and status of rare species, significant natural communities and wildlife habitats, and other sensitive ecological resources. Similarly, inventories can be used to document cultural and historic resources. Additionally, there is a vast array of existing data available through NH GRANIT and other sources.
- Determine management goals and objectives that reflect each property or conservation area’s important natural resources and public values.
- Develop a management plan that clearly defines allowed and restricted uses, management zones, sensitive resources, restoration needs, and intended management activities. Consider whether a property, or some portions thereof, should be designated for special management regimes (such as restrictions on recreation or timber harvest) to maintain or enhance significant natural features.
- Secure and allocate sufficient resources to implement the management plan. Necessary resources may include staff, volunteers, technical experts, equipment, and funds.
- Monitor the property to determine if management strategies are achieving goals, and to adapt management approaches as necessary over time.

Informational Resources

A listing of conservation organizations and funding resources is provided within Appendix __. Funding for land protection projects can come from a variety of government and non-government sources. The availability of funds for land protection is highly variable, and often subject to federal, state, and local government priorities. It is important for entities engaging in land protection to stay in contact with potential funding sources to determine available funds, grant deadlines, and criteria.

**Implementation Strategy Three: Establish Effective Zoning Ordinances to Protect the Focus Areas Identified in this Plan.**

It is not practical to assume that sufficient funding will ever be available to implement the many land protection goals, priorities and targets identified in this plan or to acquire adequate conservation easements or fee simple ownership of the 37,401 acres of Core Focus Areas and 66,295 acres of Focus and Supporting Drainage Areas identified within the watershed. Even a doubling of the number of currently protected lands within the watershed (from 28,435 acres to
56,870 acres) would still leave many resources left unprotected. In addition, as communities within the watershed continue to grow pressures from development will likely continue to increase and stress the overall ecological health of the watershed.

In light of these facts, an important component of this plan’s implementation strategy, therefore, is to provide guidance and to recommend effective land use regulations that will help to reduce the impacts of development, while still maintaining important conservation values. There are many effective environmental planning strategies and land use regulations that communities within the watershed can implement. Some of the more important strategies and regulations include:

- Designate Prime Wetlands
- Update Local Wetlands Regulations – Establish No Net Loss of Wetlands Policies
- Adopt Aquatic/Riparian Buffer Regulations
- Promote Effective Stormwater Management
- Establish Low Impact Development Standards and Practices
- Adopt Habitat Protection Regulations
- Update Aquifer Protection Regulations
- Identify and Protect 1st, 2nd and 3rd Order Streams
- Encourage Compact Growth and Development through Master Plan policies and Zoning, Site Plan and Subdivision Regulations
- Require Mandatory Open Space/Conservation Subdivisions
- Update Floodplain Development Ordinances – Establish No Net Loss of Flood Storage Capacity
- Establish a Transfer of Development Rights Process and Regulations

To aid communities in implementing these strategies, two model ordinances are recommended as overall tools for protecting the focus areas identified by this plan. These model ordinances are designed to carefully balance the rights of private landowners with the public responsibility to protect the significant and unique natural resources of the watershed.

Each model ordinance has a specific public purpose and is designed to address many of the important strategies identified above (See Appendix C). Also, included in this plan is a Habitat Protection Checklist (see Appendix C). This checklist was developed in *The Land Conservation Plan for New Hampshire’s Coastal Watersheds* and offers community planning boards and conservation commissions anywhere within the state a useful resource and model site plan and subdivision regulations to provide for enhanced wildlife habitat protection.

**Conservation Focus Area District**

To protect the Conservation Focus Areas identified this plan, a model ordinance referred to as the Conservation Focus Area District is recommended (see Appendix C). This model ordinance is designed after the Town of New Durham’s existing Conservation Focus Area District. The specific purpose of this ordinance is to maintain diverse wildlife habitat, abundant wetlands, high water quality, productive forests, and many outstanding recreational opportunities which currently exist within the identified conservation focus areas within the Piscataquog Watershed.
Municipalities can utilize this model ordinance as an overlay zone and apply the regulations and standards set forth in the ordinance to specific focus areas or all the focus areas identified by this plan. A map of these areas will need to be prepared and used as the basis for the zoning ordinance. Each of the four regional Planning Commissions within the watershed could provide assistance to municipalities in both drafting the final ordinance and preparing this map as part of Phase Two of this project.

This zoning district is intended to accommodate reasonable development within the Conservation Focus Areas but also protects the ecological functions and natural resources within these areas. It is also intended to work in concert with and to supplement existing land protection efforts aimed at establishing conservation easements or obtaining fee simple ownership in property.

Authority for establishing a Conservation Focus Area District is provided through the zoning provisions of RSA 674:16 and 17 and more specifically RSA 674:21 Innovative Land Use Controls and RSA 674:21 (j) Environmental Characteristics Zoning.

This new district would apply to all applications for subdivisions that create 3 or more new lots and all site plan applications that include 2 acres or more of proposed development within a Conservation Focus Area. The concept behind this new overlay district is to limit the location and density of development within the conservation focus area portions of any property such that no more than 10 percent of the total land within the focus area may be developed.

This 10 percent standard is line with many scientific studies and investigations which have examined the effects of urbanization on stream water quality and aquatic life. A new USGS report examined these effects on a national level and the found that by the time a watershed reaches about 10 percent impervious cover, degradation in water quality and aquatic wildlife occurs.\(^{30}\) Impervious coverage (IC) is a powerful metric and predictor of stream impairment and overall subwatershed restoration potential. Generally, subwatersheds with lower IC have greater restoration potential.

In addition, total subwatershed forest cover (FC) is another important metric and has a strong positive influence on stream quality. Generally, subwatersheds with a high percentage of FC posses better stream quality, thus the model ordinance also includes performance standards that require that all subdivisions of land on parcels greater than 10 acres in size shall be submitted and approved as open space or conservation subdivisions according to the municipality’s existing subdivision regulations.

Because of the need to prevent fragmentation of forest cover and wildlife habitat within the identified conservation focus areas, a diagram is included in the model ordinance to show how the land can be both developed and still maintain a 100-foot wide contiguous forested or naturally vegetated wildlife corridor along all sides and rear property lines.

---

\(^{30}\) USGS Report – see: [http://water.usgs.gov/nawqa/urban](http://water.usgs.gov/nawqa/urban)
The other key standards included in the model ordinance require that all 1st and higher order perennial streams must have a minimum 100-foot naturally-vegetated no-disturb buffer to protect riparian habitat and water quality. These buffers are recommended to be measured from the reference line of streams and the buffers can be expanded for steep slopes.

In addition the model ordinance recommends that any proposed development within the focus areas not disturb habitat for rare, threatened, or endangered species or exemplary natural communities and that all subdivision and site plan applications be submitted to the New Hampshire Natural Heritage Bureau for review and recommendation.

Finally, the model ordinance includes a provision that places a burden on an applicant to show that no alternative is available or possible to locate the proposed development outside of the focus area and that a stormwater management and erosion and sedimentation control plan be prepared by a professional engineer showing specific methods to be used to manage the quantity and treat the quality of the stormwater for the entire site.

Water Quality Protection District

The second model ordinance recommended in this plan is also designed after the Town of New Durham’s existing water quality protection zoning district. This overlay zone is similar to the Conservation Focus Area District, but it is specifically aimed to protect open water, wetlands, designated prime wetlands, and the upland riparian and perennial headwater streams within a community by limiting development within these areas through a Conditional Use Permit process and establishing specific buffer and setback distances from these resources according to four use categories.

The specific size of the buffer within the ordinance depends on the specific need for it thus it offers greater flexibility and resource protection than simply establishing one specific setback distance. From the standpoint of water quality protection, vegetated buffers serve many important roles including nutrient uptake, silt capture and waste assimilation, and flood storage. Most vegetated buffers exceeding 100 feet typically are not required to achieve these functions (except for steep slopes or highly erodible soils). Protection of wildlife – terrestrial and aquatic features – require larger buffers.

Except for wetlands, as noted in this plan many upland riparian and perennial headwater streams within a community are not regulated – either through local zoning or by the State of New Hampshire (e.g. the wetland act or the comprehensive shoreland protection act). This model ordinance is designed to overcome this limitation by identifying the specific water resource areas of the community to be protected such as:

- Perennial streams and rivers (less than 3rd order);
- Ponds and lakes greater than 3,000 square feet and less than 10 acres in size;
- Wetlands that are not identified by the ordinance and are greater than 3,000 square feet in size;
- Vernal pools (as verified by a wetland scientist or qualified professional);
- Seasonal or intermittent streams;
Wetlands and surface waters of special local significance (Prime Wetlands or candidates, large or uncommon wetlands and headwater streams) – these resources must be named and identified on a map).

The base buffer setback requirements in the model vary from 25 to 125 feet for each of the above identified resource type. Distance adjustments are also accounted for steep slopes. Basically, no structure or building, impermeable surface such as a paved driveway or parking area can be located or constructed within the distance specified from the reference line of the specified water resource reference line, except as allowed by Conditional Use Permit and in accordance with Best Management Practices to manage and treat stormwater runoff.

In summary, this Water Quality Protection District offers communities an all in one approach in achieving wetlands and riparian resource protection which is generally not available locally or through state regulations. The model zoning ordinance also provides an effective tool for municipalities in protecting the seasonal and intermittent headwater streams of the Piscataquog River and at the same time achieving a reasonable balance between resource protection and property use and development.

**Master Plan Support**

New zoning ordinances in general should never be adopted without first establishing the rationale or basis for such ordinance within a community’s master plan. This is especially true for the model ordinances recommended in this plan as these ordinances are specifically authorized by RSA 674:21: Innovative Land Use Control. Innovative Land Use Controls can only be made mandatory when specifically “supported in the master plan” (RSA 674:21 III).

Therefore, it is important that communities interested in establishing these and/or other similar zoning ordinances conduct an assessment of their existing master plan -- goals and recommendations -- to see if the rationale for these overlay districts exist.

In addition, it is important that this plan be adopted by reference as part of the community’s master plan and hazard mitigation plan to show community support for resource protection within the community. This can be accomplished by either modifying specific sections and/or by incorporating (by reference), a signature page identifying the adoption of this plan as part of the community’s master plan and hazard mitigation plan.

**Resource Visibility**

To help elevate the visibility of these critical resources throughout the watershed, the New Hampshire Rivers Management and Protection Program has a Protected River Sign Opportunity for Municipalities. The NH DES offers communities the opportunity to display NH Protected River signs, which help to identify the river’s importance to the area’s natural and cultural heritage.

Signs may be placed anywhere within the town lines by the town/city or an appropriate contractor, with the exception of state highways. NH DES will provide funding for primary river
signs and secondary river signs if available. If funding is not available, the local advisory committee is responsible for funding to cover all costs associated with the production and installation. Conservation Commissions may be able to offer financial support to the LAC to help with these costs.

Generally, a primary and a secondary sign set will cost in the order of $178, including the two sign blades, post and hardware. Currently, there are signs for the Piscataquog River located in North Weare at the Rte. 114 crossing just south of the intersection with Rte. 77; a sign in the center of New Boston at Rte. 13; and signs located on Henry Bridge Road and downtown Goffstown.

Additional primary or secondary signage could be considered for many of the river branches and headwater stream crossings within the watershed, especially if a community elects to protect these valuable resources within their community through local means. This is an important decision and responsibility for all eleven watershed communities.